



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

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D4680-041
Job Sheet 192277



Part No: D4680-041

Job Qty: 1 pcs

Part Name: Skidtube Assembly



Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 3/20/19

Job Tracking No:

Due Date: 4/10/19

Created By: Marie Lajeunesse

Type: Stock

Description:

Note: DWG REV F IPP REV:A 13.04.16 NEW ISSUE DD VERF:JLM IPP REV:B 13.08.08 PB2 DD VERF:JLM IPP REV:C 13.09.10 PB3 DD VERF:JLM IPP REV:D 13.11.14 AS PER DWG REV.B DD VERF:JLM IPP REV:C 14.11.24 AS PER DWG REV.C DD VERF:JLM IPP REV:D 15.06.10 AS PER DWG REV.D DD VERF:JLM IPP REV:E 16.03.23 AS PER DWG REV.E DD VERF:JLM

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard Setup Hrs	Run Hrs	Workcenter/Supplier	Lead Time	Sign-off
120	Skid tubes - 1	1 pcs		4/10/19	0.00	4.86	Skid tubes - 1		UD
							Skid tubes - 2		
							Skid tubes - 3		
							Skid tubes - 4		
							Skid tubes - 5		SC
							Skid tubes - 6		
							Skid tubes - 7		
140	QC 5	1 pcs		4/10/19	0.00	0.00	QC 5 - 10		
							QC 5 - 12		
							QC 5 - 17		
							QC 5 - 18		
							QC 5 - 19		
							QC 5 - 22		
							QC 5 - 24		
							QC 5 - 3		
							QC 5 - 43		
							QC 5 - 49		
							QC 5 - 51		
							QC 5 - 58		
							QC 5 - 68		SEP 09 2019
							QC 5 - 9		DAS 68 9-89
							QC 5 - 50		
							QC 5 - 30		
							QC 5 - 40		
150	Handfinish - 1-1 Chemical-B4B	1 pcs		4/10/19	0.00	0.73	Handfinish - 1 - 1 - B4B		
							Handfinish - 1 - 2 - B4B		
							Handfinish - 1 - 3 - B4B		SEP 09 2019
							Handfinish - 1 - 4 - B4B		
							Handfinish - 1 - 5 - B4B		



Container No: S209893



Part: D4680 - 041

Job No: 192277

Serial No/Batch: S209893

Revision: F

Inspector:

Exp Date:

Instructions: Various STC's

Dart Aerospace Ltd.
1270 Aberdeen Street
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CANADA
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Email: sales@dartaero.com
www.dartaerospace.com

Date: 08/28/19

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				Handfinish - 1 - 6 - B4B	
				Handfinish - 1 - 7 - B4B	
				Handfinish - 1 - 8 - B4B	
				Handfinish - 1 - 9 - B4B	
				Handfinish - 1 - 10 - B4B	
				Handfinish - 1 - 11 - B4B	
				Handfinish - 1 - 12 - B4B	
				Handfinish - 1 - 13 - B4B	
				Handfinish - 1 - 14 - B4B	
				Handfinish - 1 - 15 - B4B	
				Handfinish - 1 - 16 - B4B	
				Handfinish - 1 - 17 - B4B	
				Handfinish - 1 - 18 - B4B	
				Handfinish - 1 - 19 - B4B	
				Handfinish - 1 - 20 - B4B	
				Handfinish - 1 - 21 - B4B	
				Handfinish - 1 - 22 - B4B	
160	QC 7	1 pcs	4/10/19	0.00 0.00	QC 7 - 10
					QC 7 - 13
					QC 7 - 14
					QC 7 - 15
					QC 7 - 17
					QC 7 - 18
					QC 7 - 19
					QC 7 - 2
					QC 7 - 28
					QC 7 - 3
					QC 7 - 30
					QC 7 - 34
					QC 7 - 36
					QC 7 - 37
					QC 7 - 41
					QC 7 - 47
					QC 7 - 48
					QC 7 - 51
					QC 7 - 58
					QC 7 - 59
					QC 7 - 60
					QC 7 - 9
					QC 7 - 68
					QC 7 - 50
					QC 7 - 67
					QC 7 - 40
170	Skidtubes - 2 - B4B	1 pcs	4/10/19	0.00 4.86	Skidtubes - 1 - B4B
					Skidtubes - 2 - B4B
					Skidtubes - 3 - B4B
					Skidtubes - 4 - B4B
					Skidtubes - 5 - B4B

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				Skid tubes - 6 - B4B	
				Skid tubes - 7 - B4B	
180 QC 5	1 pcs	4/10/19	0.00 0.00	QC 5 - 10	
				QC 5 - 12	
				QC 5 - 17	
				QC 5 - 18	
				QC 5 - 19	
				QC 5 - 22	
				QC 5 - 24	
				QC 5 - 3	
				QC 5 - 43	
				QC 5 - 49	
				QC 5 - 51	
				QC 5 - 58	
				QC 5 - 68	
				QC 5 - 9	
				QC 5 - 50	
				QC 5 - 30	
				QC 5 - 40	
210 Handfinish - 2-1 Pressure- B4B	1 pcs	4/10/19	0.00 0.73	Handfinish - 2 - 1 - B4B	XL 14-10-16
				Handfinish - 2 - 2 - B4B	
				Handfinish - 2 - 3 - B4B	
				Handfinish - 2 - 4 - B4B	
220 Powdercoat - 1 White Gl(A)- B4B	1 pcs	4/10/19	0.00 0.17	Powdercoat - 1 - B4B	
				Powdercoat - 2 - B4B	
				Powdercoat - 3 - B4B	BL 17-10-16
				Powdercoat - 4 - B4B	
230 QC 3	1 pcs	4/10/19	0.00 0.00	QC 3 - 10	
				QC 3 - 13	
				QC 3 - 15	XL 14-10-16
				QC 3 - 17	
				QC 3 - 18	
				QC 3 - 2	
				QC 3 - 28	
				QC 3 - 3	
				QC 3 - 30	
				QC 3 - 34	
				QC 3 - 36	
				QC 3 - 41	
				QC 3 - 51	
				QC 3 - 58	
				QC 3 - 59	
				QC 3 - 68	
				QC 3 - 9	
				QC 3 - 40	
				QC 3 - 19	
260 Handfinish - 4-1-Assembly- B4B	1 pcs	4/10/19	0.00 0.73	Handfinish - 4 - 1 - B4B	XL 14-10-16
				Handfinish - 4 - 10 - B4B	
				Handfinish - 4 - 11 - B4B	
				Handfinish - 4 - 12 - B4B	
				Handfinish - 4 - 13 - B4B	
				Handfinish - 4 - 14 - B4B	
				Handfinish - 4 - 15 - B4B	
				Handfinish - 4 - 2 - B4B	
				Plex 3/20/19 11:22 AM Dart.lajeunesse.marie	

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				Handfinish - 4 - 3 - B4B	
				Handfinish - 4 - 4 - B4B	
				Handfinish - 4 - 5 - B4B	
				Handfinish - 4 - 6 - B4B	
				Handfinish - 4 - 7 - B4B	
				Handfinish - 4 - 8 - B4B	
				Handfinish - 4 - 9 - B4B	
270 QC 5	1	4/10/19	0.00 0.00	QC 5 - 10	
	pcs			QC 5 - 12	
				QC 5 - 17	
				QC 5 - 18	
				QC 5 - 19	
				QC 5 - 22	
				QC 5 - 24	
				QC 5 - 3	
				QC 5 - 43	
				QC 5 - 49	
				QC 5 - 51	
				QC 5 - 58	
				QC 5 - 68	
				QC 5 - 9	
				QC 5 - 50	
				QC 5 - 30	
				QC 5 - 40	
300 Packaging 3-1 - Stock - B4B	1	4/10/19	0.00 0.00	Packaging 3 - 1 - B4B	
	pcs			Packaging 3 - 2 - B4B	
				Packaging 3 - 3 - B4B	
				Packaging 3 - 4 - B4B	
				Packaging 3 - 5 - B4B	
				Packaging 3 - 6 - B4B	
				Packaging 3 - 7 - B4B	
				Packaging 3 - 8 - B4B	
				Packaging 3 - 9 - B4B	
				Packaging 3 - 10 - B4B	
				Packaging 3 - 11 - B4B	
				Packaging 3 - 12 - B4B	
				Packaging 3 - 13 - B4B	
				Packaging 3 - 14 - B4B	
				Packaging 3 - 15 - B4B	
				Packaging 3 - 16 - B4B	
				Packaging 3 - 17 - B4B	
				Packaging 3 - 18 - B4B	
				Packaging 3 - 19 - B4B	
				Packaging 3 - 20 - B4B	
				Packaging 3 - 21 - B4B	
				Packaging 3 - 22 - B4B	
				Packaging 3 - 23 - B4B	
				Packaging 3 - 24 - B4B	
				Packaging 3 - 25 - B4B	
				Packaging 3 - 26 - B4B	
				Packaging 3 - 27 - B4B	
				Packaging 3 - 28 - B4B	
				Packaging 3 - 29 - B4B	
				Packaging 3 - 30 - B4B	
				Packaging 3 - 31 - B4B	
				Packaging 3 - 32 - B4B	
				Packaging 3 - 33 - B4B	
				Packaging 3 - 34 - B4B	
				Packaging 3 - 35 - B4B	

CHG 006

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310-QC 21 - SA	1 pcs	4/10/19	0.00 0.00	Packaging 3 - 36 - B4B	
				QC 21 - SA - 21	0.5
				QC 21 - SA - 70	2.1
				QC 21 - SA - 53	0.38

Part Op 120 - 1-Cut Aft end as per dwg D4680 3-Drill Aft & Fwd Cap holes using DT8678 & DT8901 open aft cap 0.187". 4-Locate holes using 0.187" drill. 6-Open ground wire hole .297" at 95.75" (1 at fwd end & 2 at aft end at 20.81" ref.) 8- 3 most fwd x-bolt holes must be laid out manually, open to #30. 9-Open Aft & Fwd Cap holes using .208" drill. 10- Open X-Bolt holes to .750" (10 places) 11- Drill Rivet Holes as per Dwg D4680 using DT10065 ***DO NOT DRILL RIVET HOLES ON SECTION G-G (TWO PLACES) Open G-G to .750 12-Debur holes.

140 - (QC5- Inspect part completeness to step on W/O)
 150 - (Chemical Conversion Coat per QSI005 4.1)
 160 - (QC7-Inspect Chemical Conversion Coat)
 170 - 1- Bond web as per Dwg D4680 & QSI 015 2- Seal all faying surfaces using proseal and rivet Doubler as per Dwg D4680. A/R Proseal Batch: 8176610 exp date: 10/19 ***LET IT CURE FOR 7HRS*** START TIME: _____ FINISH TIME: _____
 3- Rivet doublers as per dwg Shave rivet as required, remove Proseal spill over. 4- Ream holes section C-C as per dwg, deburr 8 places 5- Swage x-bolt spacers as per Dwg D4680 section C-C 8 places. 6- Swage x-bolt spacer as per dwg D4680 section G-G 7- Trim/Grind flush per QSI 002
 180 - (QC5- Inspect part completeness to step on W/O)
 210 - (Pressure Wash per QSI005 4.3/ Clean and remove all markings), Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch.
 220 - (White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum), START TIME: _____
 230 - (QC3- Inspect Part Finish)
 260 - (Assemble as per dwg), 1- Install Ground Wire inserts as per Dwg D4680. 2-Inspect for Foreign objects 3- Install Fwd & Aft caps as per Dwg D4680 and Detail "A" & "B". Fastener must be install wet as per note (9). Seal all faying surfaces note (8) A/R 241 Sika Flex Batch: 5200675 Exp Date: 2-6-7-22 4- Wing Walk as per Dwg D4680 and QSI 005 4.4 Batch: 5209365
 270 - (QC5- Inspect part completeness to step on W/O)
 300 - (Identify as per dwg & Stock Location: _____)
 310 - (QC21- Final Inspection - Work Order Release)

Job BOM

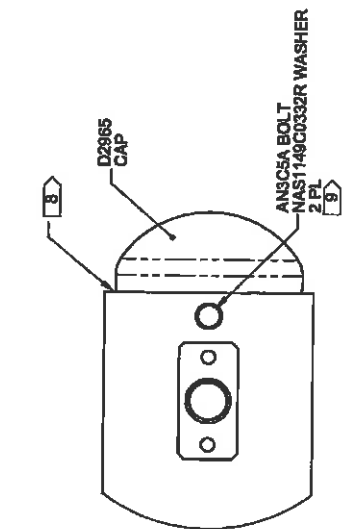
Part / Item	Component Name	Quantity	Operation	Container
D4680-041-BENT	Extrusion Bent	1 pcs (1 ea)	120-Skiddtubes - 1	012438
D5520-1	Doubler	2 pcs (2 ea)	120-Skiddtubes - 1	5107278
CR3212-5-05	Rivet	68 pcs (68 ea)	170-Skiddtubes - 2 - B4B	5172448
D4681-041	Web Assembly	1 pcs (1 ea)	170-Skiddtubes - 2 - B4B	3157507
AELS-1032-130	Rivnut	3 Ea (3 ea)	260-Handfinish - 4-1-Assembly-B4B	5164043
AN3C4A	Bolt	3 Ea (3 ea)	260-Handfinish - 4-1-Assembly-B4B	5164043
AN3C5A	Bolt	2 Ea (2 ea)	260-Handfinish - 4-1-Assembly-B4B	5218780
AN526C1032R10	Screw	2 Ea (2 ea)	260-Handfinish - 4-1-Assembly-B4B	5216214
D2965	Cap	1 pcs (1 ea)	260-Handfinish - 4-1-Assembly-B4B	5166980
D2965-3	Cap	1 pcs (1 ea)	260-Handfinish - 4-1-Assembly-B4B	5040482
D4686-1	Spacer	8 pcs (8 ea)	260-Handfinish - 4-1-Assembly-B4B	5160521
D5304-1	Crossbolt Spacer	2 pcs (2 ea)	260-Handfinish - 4-1-Assembly-B4B	5163997
MS20601-AD4W3	Rivet	32 Ea (32 ea)	260-Handfinish - 4-1-Assembly-B4B	5148275
NAS1149C0332R	Washer	5 Ea (5 ea)	260-Handfinish - 4-1-Assembly-B4B	5214592
D4753-1	Doubler	16 pcs (16 ea)	300-Packaging 3-1 - Stock - B4B	5218154

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
120-Skiddtubes - 1	D4680-041-BENT	1	7	0
	D5520-1	2	22	0
170-Skiddtubes - 2 - B4B	CR3212-5-05	68	1,296	0
	D4681-041	1	8	0
260-Handfinish - 4-1-Assembly-B4B	AELS-1032-130	3	101	0
	AN3C4A	3	2,016	0
	AN3C5A	2	1,446	0
	AN526C1032R10	2	49	0
	D2965	1	23	0
	D2965-3	1	5	0
	D4686-1	8	76	0
	D5304-1	2	43	0
	MS20601-AD4W3	32	846	0
	NAS1149C0332R	5	5,083	0
300-Packaging 3-1 - Stock - B4B	D4753-1	16	35	0

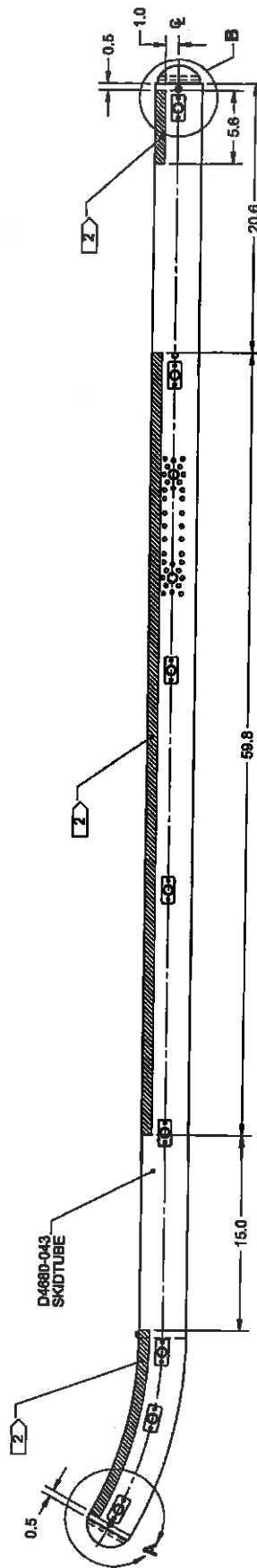
Part Specifications
Specifications could not be found.

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DETAIL A
SCALE 4X

DETAIL B
SCALE 4X



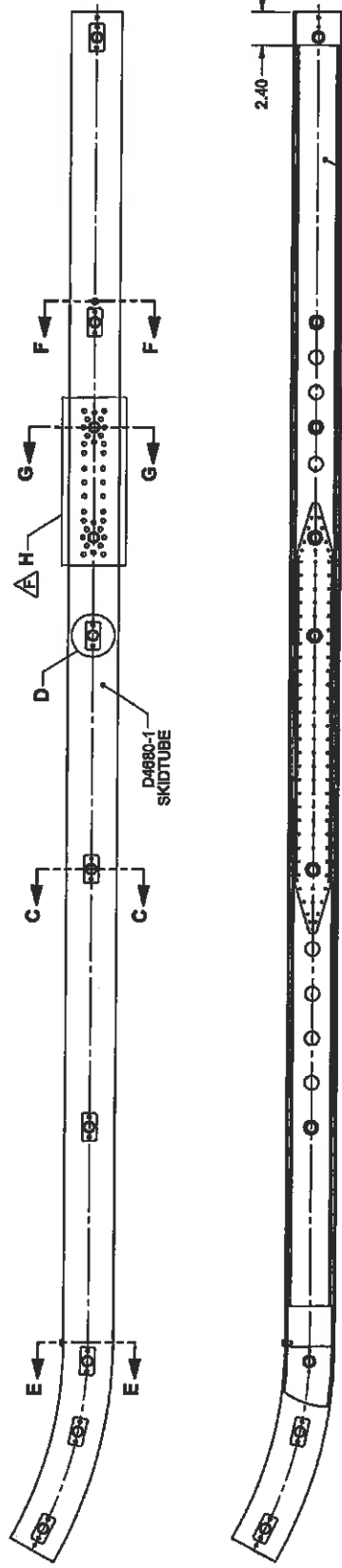
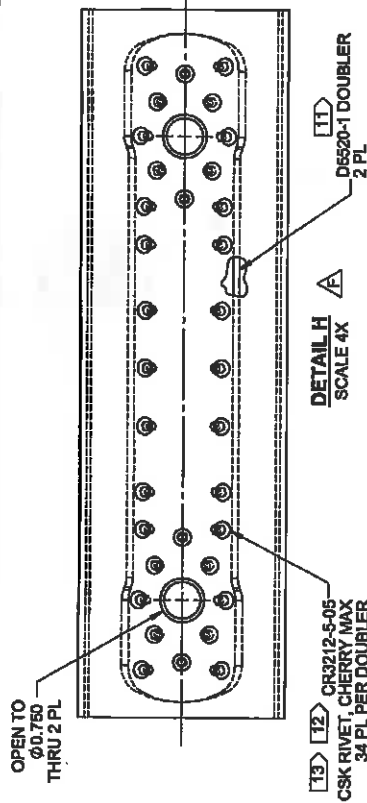
DESIGN	AP	DART AEROSPACE USA, INC. ELK GENE, OR	DRAWING NO. D4880	REV. F SHEET 2 OF 5	SCALE N/T S
DRAWN	AJS				
CHECKED	ML				
WFG. APPR.	DP				
APPROVED	WM	TITLE SKIDTUBE			
DATE	17.03.30	DS			

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2017-08-11
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ITEM	QTY	PIN	DESCRIPTION
1	X	D4680-043	SKIDTUBE SUB ASSY
2	1	D4680-1	SKIDTUBE
3	1	D4681-041	WEB ASSY
4	8	D4688-1	SPACER
5	16	D4753-1	DOUBLER
6	2	D5304-1	CROSSBOLT SPACER
7	2	D5520-1	DOUBLER
8	3	AN304A	BOLT
9	32	MS20601AD4W3	RIVET, BLIND, CSK
10	3	NA51149C0322R	WASHER
11	3	AEL5-1032-130	INSERT
12	68	CR3212-5-05	CSK RIVET, CHERRY MAX



- NOTES:
- 1) MATERIAL: N/A
 - 2) FINISH: POWDER COAT WHITE (REF 4.3.5.1) PER DART QSI 005 4.1
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: N/A
 - 6) IDENTIFICATION: NONE
 - 7) WEIGHT: 18.6 lbs
 - 8) SEAL ALL MATING SURFACES USING PROSEAL 8901422 OR MIL-S-8802 CLASS B2 SEALANT
 - 9) INSERT D4681-041 WEB INTO D4680-1 SKIDTUBE IN LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX 241/281 ADHESIVE PER DART QSI 015
 - 10) INSTALL D4688-1 SPACER AFTER INSTALLING D4753-1 DOUBLERS
 - 11) LOCATE THE D5520-1 DOUBLER USING THE Ø0.188 PILOT HOLES ON THE SKIDTUBE AND DOUBLER
 - 12) LOCATE QTY (34) HOLES ONTO THE SKIDTUBE PER D5520-1 DOUBLER AND DRILL Ø0.161 THRU SKIDTUBE AND DOUBLER USING DT10309
 - 13) COUNTERSINK THE SKIDTUBE Ø0.288 X 100° (34 PL) AND INSTALL EACH D5520-1 DOUBLER USING QTY (34) CR3212-5-05 CSK RIVETS

RELEASED
2017-08-11

DESIGN	AP	AP	DART AEROSPACE USA, INC.
DRAWN	AJS	DRAWING NO.	EUGENE, OR
CHECKED	ML	REV. F	
MFG. APPR.	DP	SHEET 3 OF 5	
APPROVED	WM	TITLE	SKIDTUBE
DE APPR.	DG	SCALE	NTS
DATE	17.03.30		

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Entered: _____ Date: _____

WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

NCR No. _____

Route update only ☐

Job: <u>192277</u> Part No. <u>D4680-041</u>		DISPOSITION Rework ☐ ☐ ☐ Scrap ☐ ☐ ☐ Use-as-is ☐ ☐ ☐		DEPARTMENT/PROCESS Skid-tube ☐ ☐ ☐ ☐ ☐ Machining ☐ ☐ ☐ ☐ ☐ Large Fab ☐ ☐ ☐ ☐ ☐ Cross tube ☐ ☐ ☐ ☐ ☐ Small Fab ☐ ☐ ☐ ☐ ☐ Finishing ☐ ☐ ☐ ☐ ☐ Eng. (Non-AW) ☐ ☐ ☐ ☐ ☐ Prod. Eng. Coord. ☐ ☐ ☐ ☐ ☐ Rec/Store/Packaging ☐ ☐ ☐ ☐ ☐ Engineering ☐ ☐ ☐ ☐ ☐ Water Jet ☐ ☐ ☐ ☐ ☐ Supplier ☐ ☐ ☐ ☐ ☐ Quality ☐ ☐ ☐ ☐ ☐	
Date: _____	Sequence #: _____	QTY Affected: _____		MRB (QS1042) <u>ND 19.09.25</u>	
Description Work Order Deviation		Disposition			
CR1122-3-6.25 Qty 4 MS2104814 Qty 2 Acc for Newer revision of tube these are made to old rev		Remove from Live B.O.M. Identify as C45006 for -031-0431-113 top level P/W			
Completed By		Lead hand / Supervisor			
QC / QA Coordinator					
Root Cause Operator ☐ Manufacturing Process ☐ Equip/Tooling ☐ Handling/Preservation ☐ Material ☐ Product Improvement ☐ Process Improvement ☐ Human Factors ☐		FAULT CATEGORY Contamination ☐ Misaligned/off center ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Incomplete/Unclear Instructions ☐ Drill Holes ☐ Fit/Function ☐ Pressure/Forced ☐ Bending ☐ Crushing ☐ Cracks ☐ Crimp/Kink/Ripple/Wave/Twist ☐ Marks/Chatter ☐ Mislabeled ☐ Other/Details: _____			
		Power Loss/Surge ☐ Folio/Program ☐ Grain Direction ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set/Set-up ☐ Positioned Wrong ☐ Outside Tolerance ☐ Drawing ☐ Finish ☐ Part Lost/Missing ☐ Misread ☐			